

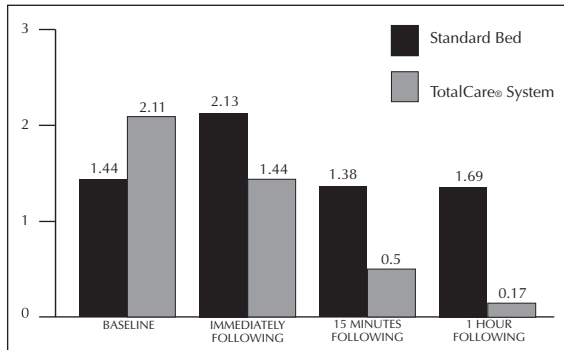
TotalCare® Bed System

Emory Hospital, Snellville, GA

STUDY RESULTS

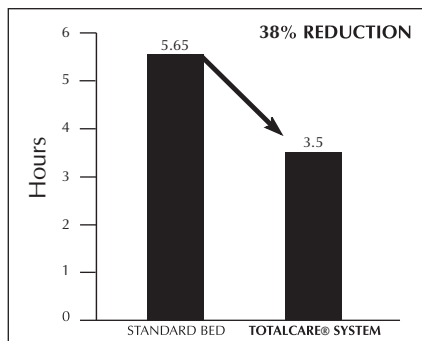
PAIN LEVEL ASSOCIATED WITH ACTIVITY

Averages based on a Scale of 0 (comfortable) to 10 (extremely uncomfortable)

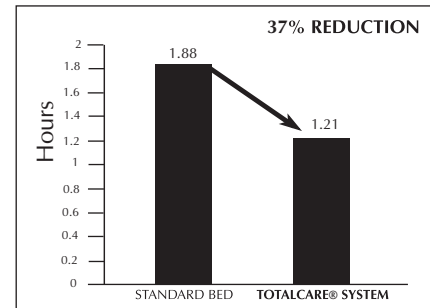


There was a significant difference between the TotalCare® Bed Group and the Standard Bed Group for pain related to activity. ($F=2.63$); $p=.006$). The TotalCare® Bed Group reported decreased pain following activity while the Standard Bed Group reported increased pain following activity. Reduction in pain associated with activity, for this sample of patients, lead to increased activity. Although not demonstrated in this study, increased activity has the potential for decreased risk of complications associated with mobility.¹

TIME FROM EXTUBATION TO ACTIVITY (Averages)



There was a significant difference between the time from extubation to activity between the two groups ($t=-2.27$; $p=.03$)



NUMBER OF CAREGIVERS REQUIRED FOR CHAIR POSITIONING (Averages)

The above findings have several clinical implications.

First, better adherence to the clinical pathway related to activity occurred for the TotalCare® Bed Group. Adherence to the pathway can decrease ICU length of stay and facilitate improved health outcomes for the patient.^{2,3} Secondly, the sooner the patient begins activity the less likely the patient will develop complications associated with immobility such as respiratory complications, pressure ulcers, and venous stasis.^{1,4} Thirdly, the finding that fewer caregivers are needed to use the TotalCare® Bed for chair positioning supports earlier work performed at Tampa General Hospital that found that on average, 1.1 caregivers were needed to place a patient in the chair position using the TotalCare® Bed.

BACKGROUND

Positioning is perhaps one of the most frequently performed nursing activities. By custom as well as through clinical pathways, critical care nurses decide how best to position their patients at least every two hours. Ideally, positioning a critically ill patient is a therapeutic decision designed to enhance or promote other nursing or medical treatments.

Nurses position critically ill patients for the following reasons: to achieve hemodynamic and respiratory function; to promote comfort; and to prevent complications associated with immobility.⁶ Although critically ill patients are not usually sustained in a upright position, they are frequently moved from bed to chair as they recover.

OBJECTIVE

The objective of this study was to utilize the full chair position feature of the TotalCare® Bed to compare differences in physiologic measures, comfort level, and pathway compliance for critically ill patients placed in the TotalCare® Bed versus those positioned in a standard bed.

METHODS

A comparative, nonexperimental design with repeated measures was used for the study. Patients who were undergoing Coronary Artery Bypass Graft (CABG) procedures and met the criteria for the Cardiac Surgery Clinical Pathway were recruited for the study. Informed consent was obtained prior to the surgical procedure. Upon arrival to the SICU, group assignment was made with the control group patients being placed in a standard bed and the experimental group placed on the TotalCare® Bed. All study participants received standard of care, however vital signs and other specified variables were collected more frequently for both groups.

RESULTS

A total of 40 patients participated in the study. Twenty were in the TotalCare® Bed Group and twenty in the Standard Bed Group. A 2x4 Repeated measures ANOVA was used to test for differences between the study groups over time for physiologic variables of comfort level, heart rate, respiratory rate, mean arterial pressure, and oximeter readings. There were significant multivariate differences found for the heart rate ($p=.004$) and respiratory rate ($p=.016$) variables but the significance was primarily related to the variance over time and not between the two study groups.

Demographic information was also collected for the two groups and provides a description of the sample of patients in the study. There were significant differences between ages or patient height/weight for the two groups. The average age for the experimental and control groups was 67. The average height for both groups was 68 inches. The average weight for the experimental group was 179 lbs. And for the control group it was 182 lbs. The total sample consisted of 9 females (20%) and 35 males (80%). Eighty-two percent of the sample was Caucasian, 16% African American, and one Mexican American participant. The primary diagnosis for the majority of the participants (77%) was coronary artery disease.

This study produced some very important information supporting the use of the TotalCare® Bed in the ICU setting. It helped to get patients moving sooner, more efficiently, and with less pain. As a result, the TotalCare® Bed helped to increase activity by getting patients moving sooner and reduced their pain associated with activity. If we could produce similar findings in the medical/surgical population, we could build on our current knowledge and build an even more powerful platform supporting the use of the TotalCare® Bed throughout the acute care setting.

REFERENCES

1. Wheeler, H. (1997). Positioning: one one good turn after another?, *Nursing Critical Care*, 2 (3), 129-131.
2. Patterson, R., Whitley, D., & Porter, K. (1997) Critical pathways and cost effective practice. *Seminars in Vascular Surgery*, 10 (2), 113-118.
3. Halm, M. (1997). Collaborative care: improving patient outcomes in cardiovascular surgery. *Progressive Cardiovascular Nursing*, 12 (2), 15-23.
4. Banasik, J. & Emerson, R. (1996). Effect of lateral position on arterial and venous blood gases in postoperative cardiac surgery patients. *American Journal of Critical Care*. 5 (2), 121-126
5. O'Malley, S. (1997). Pathways: improving outcomes, not just 'cookbook medicine'. *Qual Lett Healthc Lead*, 9 (4), 12-14.
6. Doering, LV. (1993). The effect of positioning on hemodynamics and gas exchange in the critically ill: a review. *American Journal of Critical Care*, 2 (3), 208-16.

CONCLUSIONS

In summary, the TotalCare® Bed demonstrated that, for these patients, there was decreased pain associated with activity and a shorter time period between extubation and activity. Patients reported less pain following activity in the TotalCare® Bed than those patients in the Standard Bed. Clinical pathway adherence in relation to activity was better for the TotalCare® Bed Group as demonstrated by

activity occurring 3.5 hours following extubation versus 5.6 hours for the Standard Bed Group. This supports the concept that the chair position with the TotalCare® Bed helps to get patients moving sooner thus potentially reducing ICU length of stay, and complications associated with immobility.^{2,5}

Hill-Rom®

A HILLENBRAND INDUSTRY

Batesville, IN 47006 USA • 812-934-7777 • Fax 812-934-8189

Canada • 905-206-1355 • Fax 905-206-0561

International • 812-934-8173 • Fax 812-934-7191

www.hill-rom.com

CLS009 RA1.01

© 1999, 2001 Hill-Rom Services, Inc.
ALL RIGHTS RESERVED.